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# XX.—*On the Nile, and the present and former Levels of Egypt.*

### By Sir J. GARDNER WILKINSON.

THE nature and character of the Nile, and the peculiar laws which govern the land of Egypt, are questions which in all times have been looked upon with considerable interest. Numerous conjectures were formed by ancient writers respecting the probable cause of the inundation. Some attributed it to the continued force of the Etesian or annual winds, which, blowing from the northward during that season of the year, were supposed to check the course of the stream, and to occasion it to overflow—an opinion readily refuted by Herodotus;[*] others explained it by the melting of snow in the lofty mountain ranges of Ethiopia; and some were disposed to believe that periodical rains falling there accounted for this phenomenon.

Though the reasoning of Herodotus on the subject is not very philosophical, it is evident that he attributes the rise of the Nile to the rains which fall near its source—an opinion common, as Strabo informs us,[†] to many; and one that Homer, from his calling the river *διιπετης*, or "fallen from heaven," appears to have adopted. Modern discoveries have shown the truth of this conjecture; and as far as regards the course and sources of the Blue River, or eastern branch, and its tributary streams, our knowledge is tolerably accurate. The White River, its sources, and the extent of its course from its head until it joins the Blue River at Khartûm, in lat. 15° 38′, are still a desideratum; and the only part of the stream hitherto examined is a distance of 30 days' march above the junction. It is, however, to be hoped that a native of Ethiopia, lately sent from England for the purpose, will clear up this important question, and add to our geographical knowledge, by ascertaining the course and sources of the White River. That this last is the main stream is universally allowed by every one who has visited it, from Bruce to the present day: but the Blue River possesses a remarkable character, which connects it more closely with the inundation, and claims for it the merit of being the parent of the beneficial qualities of that river which spreads fertility throughout its course from Abyssinia to Egypt.

The White River brings no such alluvial deposit: the sandy soil of its banks is unsuited to many of the productions which flourish in the other branch; and though its additional stream, rising about the same time as the Blue River, tends to raise their combined waters over the lands they fertilise in their course northward, the Egyptian peasant has merely this debt of gratitude to acknowledge; and the prayers of a heathen husbandman might be offered to the supposed god of the Abyssinian branch for the blessings of the inundation, without his being bound in duty to propitiate the presiding deity of its western companion. The Blue River has the same general character as that observable throughout the course of the Nile: its banks in Ethiopia and Egypt are formed of the same rich alluvial deposit brought from the mountains of Abyssinia; and the principal difference is in the greater thickness of the stratum left in the southern part of its course, in consequence of the heavier particles subsiding more quickly than those lighter ones which are carried onwards in its course to Egypt.

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[*] Herodot, ii. 20.

[†] Strabo, xvii. p. 543.

To give some idea of the manner in which the alluvial deposit takes place, and the changes it causes in the levels of the land, and in the bed of the river itself throughout its course, I must first observe that the bed of the Nile and the land of Egypt (to which country I shall now confine my remarks) undergo a gradual increase of elevation, varying in different places according to circumstances, and always lessening in proportion as the river approaches the sea. This increase of elevation in perpendicular height is much smaller in Lower than in Upper Egypt; and in the Delta it diminishes still more; so that, according to an approximate calculation, the land about Elephantine, or the first cataract, in lat. 24° 5′, has been raised 9 feet in 1700 years; at Thebes, in lat. 25° 43′, about 7 feet; and at Heliopolis and Cairo, in lat. 30°, about 5 feet 10 in. At Rosetta, and the mouths of the Nile, in lat. 31° 30′, the diminution in the perpendicular thickness of the deposit is lessened in a much greater decreasing ratio than in the straitened valley of Central and Upper Egypt, owing to the great extent E. and W. over which the inundation spreads; and there the elevation of the land in the same period of 1700 years has been comparatively imperceptible. In like manner, the proportion between the increase at Elephantine and Thebes differs from that between Thebes and Heliopolis, because the breadth of the valley is greater below Thebes, and because the farther southward the more is the deposit. In one case, 1½° of latitude gives a difference of about 2 feet; in the other (from Thebes to Heliopolis) 4½° give a difference of only 1 foot 2 in.

Those arguments used to show the effects of the alluvial deposit in rapidly protruding the Delta into the sea, founded on the statement of Homer respecting the Isle of Pharos, will not, I trust, be again brought forward, since positive facts prove the limited progress made by the Delta from the earliest times of which any record exists, by the position of ancient cities, as Pelusium, Canopus, and others, whose sites are still in the vicinity of the sea-coast, but which, if any great protrusion of the land into the Mediterranean had actually taken place, ought at this time, after a lapse of between 3000 and 4000 years, to be far inland.

With regard to the statement of Homer,[*] that "the distance from the Isle of Pharos to Ægyptus was as much as a vessel with a fair wind could perform in one day," I have shown[†] that all arguments derived from it are inadmissible, in consequence of the situation of that island, and the nature of the ground on which Alexandria is built. That city stands on the rock of the Libyan Desert, which is still, as it ever was, above the reach of the inundation; and the breadth of the channel between the shore and the Isle of Pharos was in the days of Homer, and at every period, precisely the same. After the foundation of Alexandria, the island was united to the shore by an artificial dyke, called the Heptastadium; but, though this connected them, it did not bring the shore one foot nearer to the island, nor was any alluvial deposit the cause of the channel between them being closed. And now having shown that the deposit of the Nile had no power to advance the shore towards the Isle of Pharos, I beg to exculpate the poet from the imputation of a gross error, which might otherwise attach to his assertion, by observing that he uses the word Ægyptus to signify the Nile as well as the land of Egypt, which is fully explained by Diodorus,[‡] who says that Nileus, one of the early monarchs, transferred his name to the stream, which previously bore that of Ægyptus; and Arrian[§] observes that "the river now called by the Egyptians and others Nile is shown by Homer to have been named Ægyptus, when he relates that Menelaus anchored his fleet at the mouth of the Ægyptus."[‖] It is, then, to the Nile, and not to the coast of Egypt, that the poet refers, when he speaks of the distance from Pharos to Ægyptus.

The opinion of Herodotus, and others, that the constant elevation of the land by the alluvial deposit would eventually prevent the inundation covering the lands, has been repeated even to a late time; and some have thought that all the predictions of famine made by the historian were on the eve of their fulfilment. The Nile, they say, formerly rose so high above the land, that Herodotus saw the villages during the inundation like the islands in the Ægean Sea: this ceases to be the case at present; and after some years it will no longer inundate the country at all. But this opinion is maintained by its authors, merely from their not having visited Egypt during a great rise of the river; while from my own experience, and that of others, I can attest that the same happens at the present day as in ancient times, whenever the inundation is of a certain height; for it is well known that in every age the Nile varied in its rise; and the deficiencies of one or two seasons were counterbalanced by a plentiful supply of water in another year. Writers who held this argument, and foretold such dreadful calamities to the unsuspecting inhabitants of Egypt, forgot to observe that the bed of the Nile always keeps pace with the elevation of the soil, and the proportion of water annually brought down by the river has always, and ever will be, the same; the only difference being, that it now overflows a greater extent of land E. and W. than in former times, and that the superficies of cultivable land in the broad plains of Central Egypt and the Thebaïd continues to increase.

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[*] Odyss. Δ, 355.

[†] Manners and Customs of the Ancient Egyptians, vol. i. p. 7.

[‡] Diodor. i. 63.

[§] Arrian. Exped. Alex., 5 and 6.

[‖] Odyss. Δ, 477, and Ξ, 257.

In that part of Egypt lying to the S. of the Delta, the banks of the Nile are much more elevated than the land of the interior at a distance from the river, and they are seldom quite covered with water even during the highest inundations. Little, however, projects above the level of the stream, and in some places the peasant is obliged to keep out the water by temporary embankments. This may be accounted for partly by the continued cultivation of the banks, which being more conveniently situated for artificial irrigation, have a constant succession of crops; for it is known that tillage has the effect of raising land, from the accumulation of decayed vegetable substances, the addition of dressing, and other causes; and the greater depression of the plain in the interior is probably, in some degree, owing to the numerous channels in that direction, and to the effect of the currents which pass over it as the water covers the land. It must, however, be confessed that these causes are not sufficient to account for the great difference existing between the height of the bank and the land near the edge of the desert, which often varies as much as 12 and 15 feet, as may be seen from the respective heights of the dykes at those two points. These elevated roads, the sole mode of communication by land from one village to another during the inundation, commence on a level with the bank of the river, and, as they extend to the interior, rise to so great a height above the fields as to leave room for the construction of arches for the passage of the water, though, generally speaking, bridges are only built in those parts where ancient or modern canals have lowered the levels sufficiently to admit of them.

The general appearance of the dykes may be illustrated by No. 1 of the plate, in which A is the surface of the Nile during the inundation; B the level of the low Nile; C the bank; DD the raised dyke; E the beds of canals, over which bridges are built in the dyke; and F the *Hạjer* or slope of the desert, extending from the junction of the irrigated land at H to the limestone mountains G. This section is given as if the dyke were in one straight line, E. and W. from the river; but in reality they follow a tortuous course, visiting the various towns on their way, and serving as roads, as well as an impediment to the arbitrary overflow of the inundation. The direction of a dyke, varying according to circumstances, may be represented as in No. 2. It is on a plain of about 5 miles in breadth. Some dykes are much more circuitous and indirect even than this; but in all cases the principal care is to place them so as to oppose the greatest force to the largest body or pressure of water, and to offer the readiest means of communication from one village to another.

I have already observed that the deposit gradually raising the bed of the river, and the proportionate elevation of the water of the inundation, tend to increase the extent of the arable land of Egypt, and that there is now a larger tract of cultivable soil E. and W. from the river than at any previous period. This I shall endeavour to illustrate by a similar section, in which it will be seen that if the Nile, rising from its ancient bed, A B, No. 3, inundated the country in the direction and at the elevation E F, it would when raised to C D, its modern bed (the land being also raised in proportion to G), extend its inundation on the line G H to a far greater distance over the *Hajer* or slope of the desert, and give an additional tract of cultivable land from F to H. That this has actually taken place I have satisfactorily ascertained by excavations, and by observing the quantity of alluvial deposit accumulated round the base of ancient monuments, and by a comparison of the height to which the water now rises and formerly rose in the nilometer of Elephantine.

In the plain of Thebes are some colossal statues of Amunoph the Third, of which two still occupy their original site, and one of these has long been known under the name of the 'Vocal Memnon.' They stood on either side of the *dromos*, leading to a temple built by that Pharaoh, and at intervals, between them and the temple, were other colossi, statues, and tablets, long since thrown down or mutilated, and nearly covered by the alluvial deposits of the inundation. Their relative positions may be better understood from the plan No. 4 in the plate, where it will be seen that before the temple A are the tablets B C, and 420 feet beyond are the fragments of a colossus, E; then at a distance of 220 feet is another fallen colossus, G, and as a pendant to it a group of comparatively small figures cut out of a single block at F: the colossi H I, which are still standing, being 300 feet further forward, and appearing to terminate the dromos.

The temple is now surrounded by alluvial soil, and the water and mud of the inundation extend to the distance of 600 feet behind it. But when erected, about the year 1420 B.C., not only the body of the temple, but the dromos, or paved road leading to it, as well as the base of the colossi H I, were above the reach of the inundation, and the statues at F, which are still erect in their original position, were exposed to view, though now buried to their waist in the alluvial deposit.

Indeed, I believe this dromos to have been a continuation of the "royal street," mentioned in some papyri found at Thebes, which, crossing the western portion of the city, communicated by means of a ferry with the temple of Luxor, founded by the same Amunoph, on the other side of the river; as the great dromos of Sphinxes, connecting the temples of Luxor and Karnak, formed the main street in the eastern district of Thebes.

The colossi H I are 47* feet high, with the pedestal, 60, but the alluvial deposit has accumulated around them to the height of from 6 ft. 10 in. to 7 feet, so that they now stand only 53 feet above the plain.† This was ascertained by excavating to the base of the pedestal; and having penetrated beneath it, I found that it stood, not on alluvial ground, but on the soil of the desert, which was paved with sandstone blocks, serving as substructions for the colossus and the dromos. The lower side of the pedestal had not been cut smooth, but was left of a round irregular shape, extending 3 ft. 10 inches below the level of the paved dromos; but that was of little importance, the main point was to ascertain whether the slope of the dromos corresponded with that of the desert; and this I proceeded to examine. I therefore dug to the base of what I supposed to be part of a similar colossus at F, 300 feet behind the colossus H, which, however, proved to be a group of statues,—a circumstance particularly fortunate for my purpose, as they were found to be standing erect in their original position. Their total height was 8 ft. 1 inch from the base to the top of the shoulder, the part above that being broken off; they projected 2 ft. 10 in. above the level of the alluvial deposit, so that it had accumulated in this part only 5 ft. 3 in. This satisfactorily settled the question I had in view, and gave in a distance of 300 feet a difference of 1·7 to 1·9, being an average of 20 inches in 300 feet, or a decreasing ratio of 1 inch in 15 feet, for the talus of the sloping desert plain on which they were placed.

According to this ratio the basement of the temple itself should stand very little below the level of the alluvial deposit, which indeed agrees with fact, though, as may be supposed, the slope of the desert is not quite so uniform as to accord with the mathematical calculation of an uninterrupted line. It suffices for our purpose to have ascertained that this gradual slope does exist, and that the colossi and the temple standing upon it are buried in alluvial deposit in an inverse ratio as they approach the edge of the desert; and the only inference necessarily is, that the alluvial soil now reaches farther inland towards the desert than it did when these monuments were erected. We do not know how far the outermost colossi were at that time beyond the line of the alluvial deposit; the only conclusion is, that they were above its level, and that the dromos or paved street was also above the highest water-mark; though it is not possible to fix any exact point from which to calculate the annual increase of the perpendicular stratum of sand. Of this we may at least be certain, that all the deposit now existing between the colossi H I and the edge of the desert behind the temple, a total distance of 1900 feet, has been brought there since the reign of the third Amunoph, or within a period of 3260 years.

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* By sextant I make the western colossus 47 feet, and the other, by actual measurement, 47 ft. 9 in.

† The ground has sunk at the base, and the statue inclines a little to one side, so that it is difficult to ascertain the exact height of the pedestal.

What has been said, I trust, fully demonstrates these propositions, that the perpendicular rise of the bed of the Nile extends the inundation and alluvial deposit much farther in a horizontal direction, E. and W., at the present day than at any previous period; that it has always continued to do so; and that, therefore, there is a wider extent of irrigated land now than in former times. I do not, however, pretend that the same quantity of land is cultivated as formerly; this must always depend on the population, the energies of the people, the system followed by the government, and other accidental circumstances; but it is not the fault of the river, nor from any deficiency in the benefits it used to bestow on the soil of Egypt, that much land is left fallow and overgrown with noxious weeds, and the modern inhabitants might profit by the same means of cultivating the edge of the desert by artificial irrigation as their predecessors, if Egypt only possessed the advantages of population, a favourable system of agriculture, and a wise government.

I have made the same observations respecting the extent of the land in other parts of Egypt, all confirming what I have stated, as might reasonably be expected, since the same causes necessarily produce the same effects; and I now proceed to show the origin of those erroneous notions which proclaim that the drifting sands have curtailed the limits of the arable land of Egypt, and that the desert, constantly encroaching on the soil, threatens to overwhelm the valley of the Nile, and already counteracts the beneficial effects of the inundation. In some parts of Egypt, as at Bahnasá, in latitude 38° 33′, at Kerdásí, a little to the N. of the Pyramids, at Werdán, still farther N., and a few other places, the sand of the Libyan desert has been drifted into the valley, and has encumbered the land with hillocks, spreading itself over the fields near the edge of the desert, and sometimes burying trees and buildings to the depth of several feet. This has been particularly the case about Bahnasá; and Denon, who visited it, and witnessed the effect of the sand in that quarter, spread the alarm of its invasion, which has been magnified into the annihilation of the arable land of Egypt. But this evil is only partial; and, as Monsieur Regnier observes, in his Memoir upon the Agriculture of Egypt, published in the great French work,* "though many have spoken of the encroachments of the sand upon the cultivable soil, it appears to be much less considerable than is supposed; for otherwise many places indicated by ancient writers to have been on the borders of the desert would now be distant from the irrigated land, and the canal of Joseph, after so many ages of bad government, would have been long since filled up." In some places, he adds, this has happened, as at Werdan, in the province of Gizeh, where the sand has advanced to the distance of a league; but the position of the place, at the outlet of a gorge in the Libyan mountains, is perhaps partly the cause of this—an opinion which perfectly coincides with my own observation. In many places, where valleys open upon the plain, the sand is found to accumulate and sometimes to form drifts upon the land, which, when no precautions are taken, by planting the bushy tamarisk, increase so far as to prevent the overflow of the Nile from covering a portion of the previously irrigated soil; but these incursions of sand are only partial and in particular spots, bearing a very small proportion to the whole valley of Egypt; and it must be remembered that the desert, or gradual slope of the Ḥajer, between the limestone range and the arable land, is not a plain of moving sand, as some have imagined, but is composed of clay and stony ground, mixed with a proportion of sand, or an old detritus of the neighbouring rocks. On the eastern side of the valley very few sand-drifts are met with, except those seen from Cairo, beyond Heliopolis, and the Birket el Ḥájj' on the Suëz road; but these do not encroach upon the arable land, from which they are far distant; and since I have shown that on the western or Libyan side also the places where sand encumbers the land are partial, it may be readily imagined how slight an effect they must have compared with the whole extent of the country.

In the Delta, the only sandy places of consequence are here and there on the Libyan shore and on the coast of the Mediterranean, bearing an imperceptible proportion to the whole superfices of that province; and, indeed, the sand on the coast is not worthy of notice; nor can it be attributed in any way to the advance of the desert upon the land of Egypt. In many countries, as in France, about Dunkirk, the Landes and other places, as in Scotland, near Nairn, and in several parts of Europe, sand-drifts occur of great size and extent; but the same theories are not formed upon their aggressions; and we have in this a proof how far opinions are influenced by the name and by the idea of a desert. I am far from affirming that no encroachment of the sand takes place: my arguments are only intended to show that, taking into consideration the relative advance of the sand and of the alluvial deposit, the balance is greatly in favour of the latter, and the result is, that, whatever partial injury the sand may have in its power to inflict upon certain spots, the extent of the land is constantly increasing, and the number of square miles of arable soil is much greater now than at any previous period.

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* Mémoires sur l'Egypte, vol. iv. p. 5.

I must also make some remarks regarding the nature of the desert, which will be found to differ much from received opinion, as the simple mention of ranges of primitive mountains, reaching an elevation of several thousand feet, would suffice to show. I allude now to the desert lying between the Nile and Red Sea; but in order to give a just notion of the tract and the nature of the mountains in various parts, I must refer to my map, and to the accompanying sections in different latitudes.

The leading characteristic of this desert, particularly in the northern part, is its gradual ascent from the N. of the Nile to a certain distance eastward, where you arrive at a plain nearly level and of some extent, from which all the valleys or torrents running in a westerly direction empty themselves into the Nile, and those to the eastward into the Red Sea, following a descent in the opposite direction to the coast. This section, taken E. and W., about lat. 29° (see plate No. 7), will explain the appearance of the desert in that part.

The mountains there are all limestone; the ascent from the Nile to A is about 30 miles; the high plain A B is about 16 miles broad; and the descent then commences towards the Red Sea, which is about 50 miles distant.

In that part where the primitive range commences and joins the secondary hills, in lat. 28° 26′, the section E. and W. presents the appearance of *fig.* No. 8.

In lat. 28° 10′, passing by the lofty Ghárib, which is the highest peak in this desert, having an elevation of about 6000 feet, the section is of the nature as delineated in the plate *fig.* 9.

In lat. 28° from Jebel Ez-zeït in the Red Sea, to Jebel Abú Fáyidah the section has the character of *fig.* 10.

In lat. 27° crossing the great range of the Ummumfíyah, which is about 5000 feet high, the section has the appearance of *fig.* 11.

From a comparison of which it appears that this desert has one general character in its levels from the river to the Red Sea.

A little above Esneh, about lat. 25° 10′, the sandstones approach the Nile on the E. bank, and a little farther up they cross the river near Edfú, whence they continue on either side of the Nile; and at Silsilis are the quarries from which the sandstone used in the temples of Egypt was taken: 14 miles above Ombos, on the eastern bank, the granites appear, and at Eswan, 14 miles farther, they cross the river. Amidst these are the cataracts, a succession of rapids, of which no single fall is more than about 4 or 5 feet.

In Nubia the valley is very narrow, the rocks of the eastern and western mountains often coming close to the river and leaving little or no space for the deposit of alluvium; in other places on the Libyan side, the sand covers the whole level space between the hills and the bank, and the character of the country between the first and second cataract is totally different from Egypt. The river about Kalabsheh rises between 30 and 40 feet perpendicularly during the inundation, and, after it has subsided in February, the stream runs at the rate of 2 to 3 nautical miles an hour.—But I return to the deserts of Egypt.

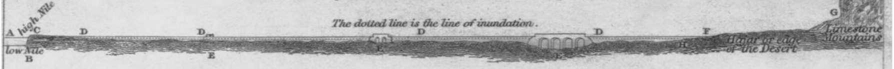
In going to the western or Libyan desert in the direction of the Oasis Parva, one road passes by the Fayyúm. That province is considerably lower than the valley of the Nile, and the lake Mœris is about 100 or 120 feet below the level of the bank at Benisúef. A section across that part of the country, from the Nile to the mountain range lying behind the lake Mœris, has the form represented in *fig.* No. 12.

The hills A A are a continuation of the range B, as may be seen in a map of this district, from which it will also appear that on leaving the Fayyúm in a southerly direction, or in going from the Nile westward, you gradually ascend till you arrive at the summit of an elevated plain, which continues on a level, or with slight undulations, for a considerable distance, and forms the extensive table-land of this part of Africa. The Oasis and other valleys are depressions in this lofty plain; and, when you descend to them, you find the level space or plain of the Oasis similar to a portion of the valley of Egypt, surrounded by steep cliffs of limestone at some distance from the cultivated land, which vary in height in the different Oases. Those of the southern Oases are much higher, and consequently their level is much lower than of the Oasis Parva, as may be seen from the section No. 13, taken nearly N. and S.

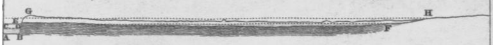
From this it appears that the water of the Oasis Parva does not come directly from the Nile, and that we must look for the origin

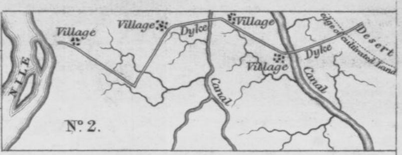
# Sections to illustrate Sir J. G. Wilkinsons paper on the levels of Egypt.

No. 1. *A raised Dyke from the bank of the Nile to the edge of the desert.*


The dotted line is the line of inundation.
A
high Nile
C
D
D
D
D
F
G
Limestone Mountains
low Nile
B
E
E
E
H
Hajar or edge of the Desert

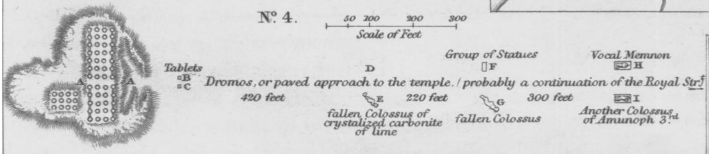
No. 3 *Proportionate elevation of the bed of the Nile & the land.*



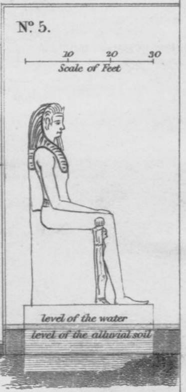


No. 2.

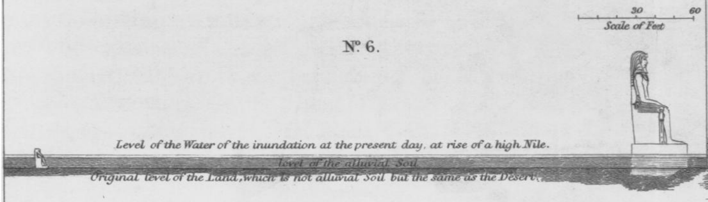
No. 4.


50 100 200 300
Scale of Feet
Tablets
B
C
A
A
D
Dromos, or paved approach to the temple. (probably a continuation of the Royal Str.t
420 feet
E
fallen Colossus of crystalized carbonite of lime
220 feet
Group of Statues
F
G
fallen Colossus
300 feet
Vocal Memnon
H
I
Another Colossus of Amunoph 3.rd

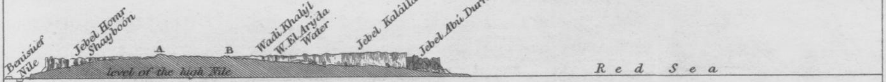
No. 5.



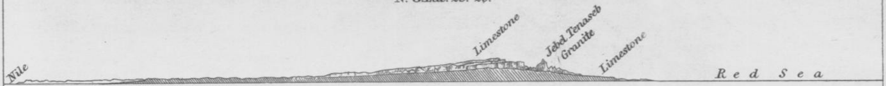
No. 6.


30 60
Scale of Feet
Level of the Water of the inundation at the present day, at rise of a high Nile.
level of the alluvial Soil
Original level of the Land, which is not alluvial Soil but the same as the Desert.

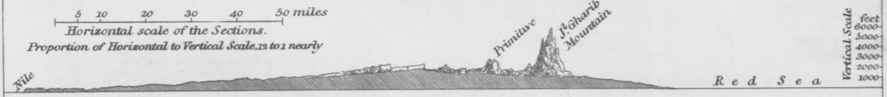
No. 7. *Section of the Eastern desert from the Nile to the Red Sea, in Lat. 29.° N.*



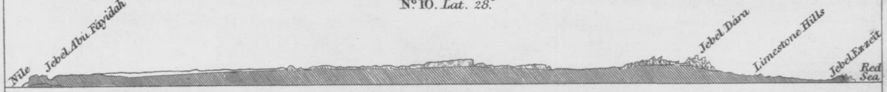
No. 8. *Lat. 28.° 26.′*



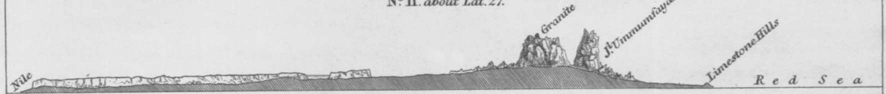
No. 9 *Lat. 28.° 10.*



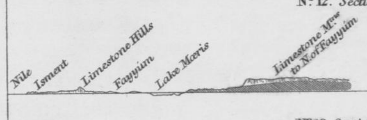
No. 10. *Lat. 28.°*



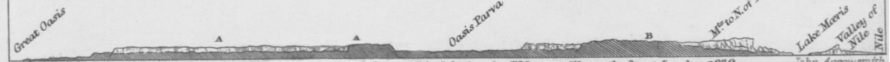
No. 11. *about Lat. 27.°*



No. 12. *Section in a N. W.ly line to the Fayyúm.*



No. 13 *Section in a general North & South direction.*



*Published, for the Journal of the Royal Geographical Society, by J. Murray, Albemarle Street, London, 1839.*

John Arrowsmith.

of its springs from a more southerly point. The mountains of the high plain are limestone, the low plain of the Oases is sandstone on clay, and from this last the water rises, and by this it is retained. The limestone mountains of the Thebaïd rest in like manner on clay; and thus we may readily imagine that the water is conveyed from some point to the S. of greater elevation than the Oases, that its escape to the surface takes place wherever the limestone superstratum is removed, and that a continuation of the same bed of clay conducts it northward to the Oasis Parva, occasional opportunities being afforded it for rising, as at Faráfireh and other places on the way

Though I have represented the mountains as if the table-land of their summit were perfectly level, in order to show the comparative depressions of the Oases, it is not to be supposed that they are horizontal; if it were so, those of Lower Egypt would be more elevated than in the Thebaïd, which is far from being the case; the mountains of Thebes being 1200 feet above the Nile, which is a much greater elevation than any in the latitude of Cairo or the Pyramids.

From what has now been said it will be evident that the Oases are not fertile spots in the midst of a sandy plain, but depressions in the lofty table-land of Africa, where, by the removal of the superincumbent limestone strata, the water has the power of rising to the surface; nor is the desert a dreary plain of sand, as some have imagined, which has overwhelmed a once fertile country, whose only traces are the isolated gardens of the Oases.

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## XXI.—*Note accompanying a Survey of the Tigris between Ctesiphon and Móșul.* By Lieutenant H. Blosse Lynch, Indian Navy.

*Baghdád, 25th July,* 1839.

I have now the gratification to state that I have transmitted to Sir John C. Hobhouse, President of the India Board, a map of the Tigris between Ctesiphon and Móșul, which I trust he will allow to be communicated to the Geographical Society.

I must also mention what has been done, that none of your labourers may go over the same field. Chains of triangles connect Nineveh to Baghdád, Bághdád to Babylon, Babylon to Ctesiphon, Ctesiphon to Baghdád, and the mountains of Hamrín in two points, namely, where the Tigris bursts through them to the N., and Diyálah to the north-eastward; most of the prin-